

### **REMARKS**

Reconsideration and allowance of the above-identified application are respectfully requested. Claims 1, 4, 6-11, 13, 15-21 and 23-31 are currently pending. By way of the foregoing amendments, claims 1, 11, 17, 18 and 25 have been amended.

Claims 1, 4, 6-11, 13, 15-21 and 23-31 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Leather (U.S. Patent No. 6,999,100) in view of Nelson (U.S. Patent No. 6,636,218). Prior to discussing this ground of rejection in detail, a brief summary of sampling patterns, methods for creating sampling patterns and the like according to exemplary embodiments is provided below in order to highlight some of the advantageous characteristics thereof.

According to exemplary embodiments of the present invention, methods and apparatuses for producing high quality, anti-aliased pictures at relatively low computational costs are achieved by providing a sampling pattern wherein each pixel has a pattern of sample points at the edges of the pixel and the sample point pattern of each pixel is a mirror image of, and different from, the pattern of a directly neighboring pixel. According to an exemplary embodiment, the mirror planes are located on the edges of the pixel and the pattern has one sample point per pixel mirror plane. Note, for example, the illustrations provided in Figures 2a and 2b which provide two examples of sample patterns according to these exemplary embodiments.

It is respectfully submitted that the teachings of Leather are not as relevant to the claimed combinations as is suggested in the Official Action. To explain why this is the case, a detailed explanation is provided below. Moreover, the independent claims have each been amended above to further highlight the following distinctions.

One significant difference between the claimed combinations and the teachings of the Leather patent involves its failure to teach or suggest the claimed "mirror plane" as set forth, among other features, in the independent claim combinations. While it is true that Fig. 9 of the Leather patent happens to show sample points in a pattern such that they are mirror images of one another, it is respectfully submitted that this is

insufficient to teach or suggest Applicants' claimed "mirror plane" for at least the following reasons.

The analysis begins with the alleged "mirror plane" of Leather selected in the Official Action. Specifically, in discussing the relevance of the Leather patent, the Official Action refers to Figure 9 in Leather and asserts that "the  $y_s$  coordinate values of pixel 0 for the left most subpixel sample of pixel 0 ... is considered a pixel mirror plane for pixel 0 because said coordinate  $y_s$  of subpixel sample (coordinate [2,2]) is parallel to the edge of the pixel with spacing equal to the distance between edges of the pixels". This statement is understood by the undersigned to mean that the Examiner refers to either a hypothetical horizontal or vertical line that passes through the upper left sample point of pixel 0 to be analogous to the claimed mirror plane. However it is respectfully submitted that mirroring the sample points illustrated in Figure 9 of Leather in any of these hypothetical lines does not result in the correct placement of sample points for neighboring pixels to meet Applicants' claimed combinations and, therefore, such lines cannot reasonably be considered to be the claimed "mirror plane".

More specifically, following the logic set forth in the Official Action, suppose that a vertical line that goes through the sample in position (2,2) is considered to correlate to Applicants' claimed mirror plane. If the samples described in Leather are then mirrored in this alleged mirror plane, the result is samples which are in the incorrect position. For instance, mirroring the sample at position (10,6) in the alleged mirror plane  $x=2$  would instead result in a sample being taken in position (-6,6), which is equivalent to a sample in position (18,6) after wrap-around. However, there is no sample shown in the example of Leather at position (18,6). Thus, the plane  $x=2$  cannot be considered to be the claimed "mirror plane", since the illustrated and described samples of Leather are not mirrored around such a plane. In this regard, Applicants' claimed combinations have been amended to further clarify this quality of the claimed "mirror planes".

Alternatively, again considering Fig. 9 of Leather, the sample in position (2,2) is mirrored in the  $x$ -direction by the sample in position (22,2), and the sample in position (6,10) is mirrored by the sample in position (14, 6). In order to satisfy the "mirroring"

quality of the claimed mirror plane, one could instead hypothetically draw a line at  $x=12$ . However, such a hypothetical "mirror plane" would still not meet Applicants' claimed combinations because there are no samples disposed at  $x=12$ , i.e., on the edge between the pixels.

Thus it is respectfully submitted that no drawing of hypothetical lines on the sampling pattern of Figure 9 of Leather would have motivated one of ordinary skill in the art to have arrived at Applicants' claimed combinations. Additionally, it is noted that the text portion of the specification of Leather merely describes possible placings of a sampling pattern, and does not teach that the sample positions can be mirror images of each other, nor does it teach mirror planes.

For this reason alone, it is respectfully submitted that the amended claims are patentably distinct from Leather taken alone or in view of Nelson. However, there is a second reason why these references do not render the claimed combinations unpatentable. With respect to claim 11, the Official Action states that Leather does not teach sampling at the edges of pixels, but that this is taught by Nelson, specifically referring to Nelson at Fig. 4, Col. 8, lines 4-21. However, it is respectfully submitted that the cited passage of Nelson simply defines a relation between center coordinates of pixels and a (coordinate) grid. It is believed that Nelson uses a single sample point per pixel, and that this sample point is located in the center of the pixel rather than at the edges.

Accordingly, it is respectfully requested that the rejection of the claims under 35 U.S.C. § 103 over Leather in view of Nelson be reconsidered and withdrawn.

All of the objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that this application is in condition for allowance and a notice to that effect is earnestly solicited. Should the Examiner have any questions regarding this response or the application in general, he is invited to contact the undersigned at (540) 361-1863.

Respectfully submitted,

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